Thursday 23rd July 2020,
NZPI Branch AGM, Christchurch

The (possible) impacts of future transport technologies on planning in Christchurch

Simon Kingham

Kaitohutohu Matua Pūtaiao | Chief Science Advisor - Te Manatū Waka | Ministry of Transport

Ahorangi | Professor - Te Whare Wānanga o Waitaha | University of Canterbury

Challenges

- Climate change
- Energy use
- Pollution
- Congestion
- Physical activity / Obesity
- Community severance
- Inequality

Future ‘things’ that might solve or create challenges

Energy

- Fossil fuels
- Biofuels - fuels produced from renewable organic materials
  - Land use implications
- Green hydrogen

Green hydrogen for Tiwai? Govt acknowledges interest is out there

Mike Fallow · 16:18, Jul 13 2020

https://www.stuff.co.nz/southland-times/news/122118467/green-hydrogen-for-tiwai-govt-acknowledges-interest-is-out-there

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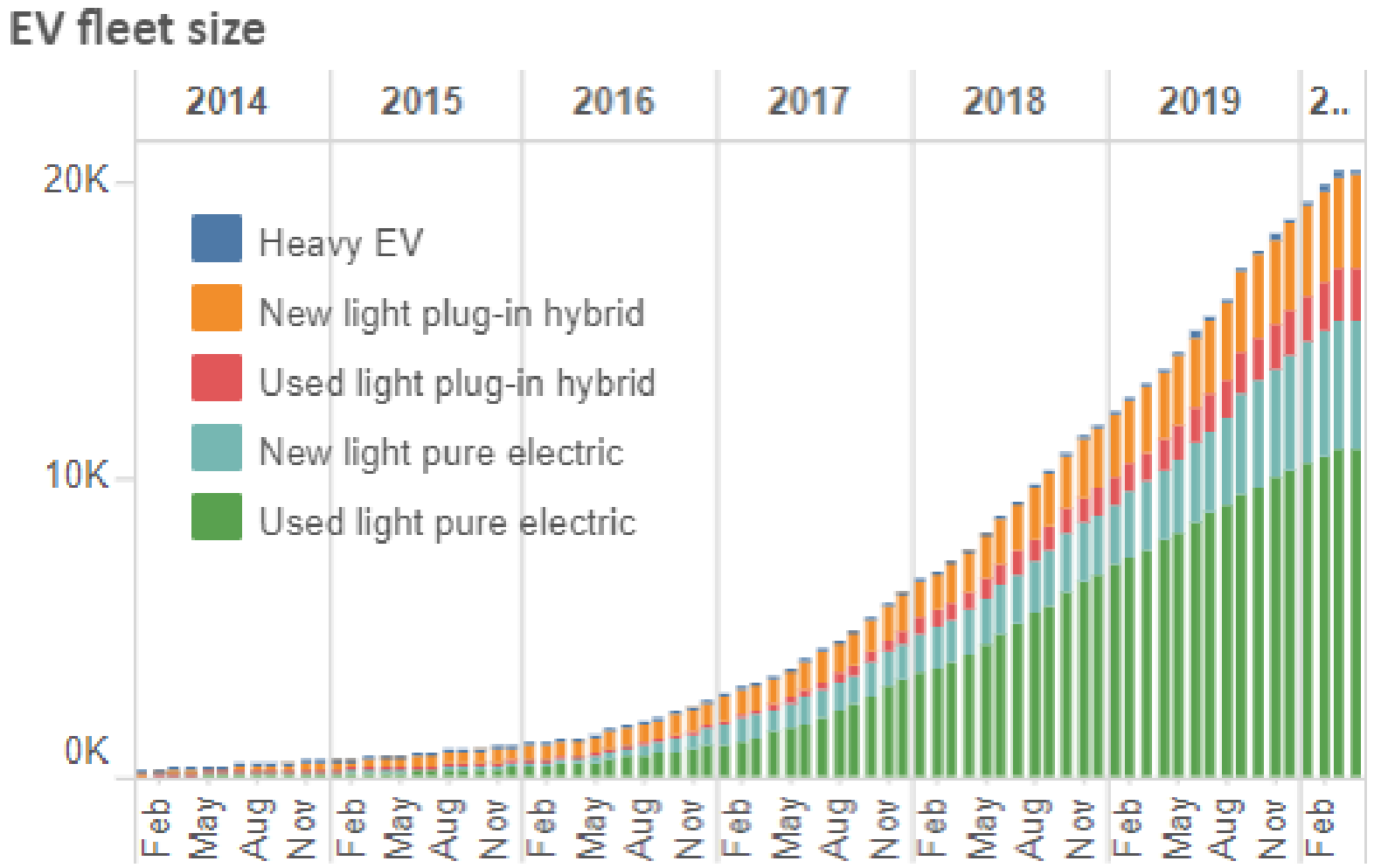
Electric



Total[(1)(2)] registered vehicles by type

As at 29 February 2020

Vehicle Type	
Agricultural machine	2,729
ATV	7,703
Bus	31,963
Goods van/truck/utility	770,998
High speed agricultural vehicle	131
Mobile machine	22,530
Moped	31,829
Motor caravan	46,803
Motorcycle	160,085
Passenger car/van	3,472,086
Special purpose vehicle	3,261
Tractor	46,069
Trailer not designed for h/way use	1,029
Trailer/caravan	788,114
Total	**5,385,330**

https://www.nzta.govt.nz/resources/new-zealand-motor-vehicle-register-statistics/national-vehicle-fleet-status/

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https://www.transport.govt.nz/mot-resources/vehicle-fleet-statistics/httpswww-transport-govt-nzmot-resourcesvehicle-fleet-statisticshttpswww-transport-govt-nzmot-resourcesvehicle-fleet-statisticsmonthly-electric-and-hybrid-light-vehicle-registrations/

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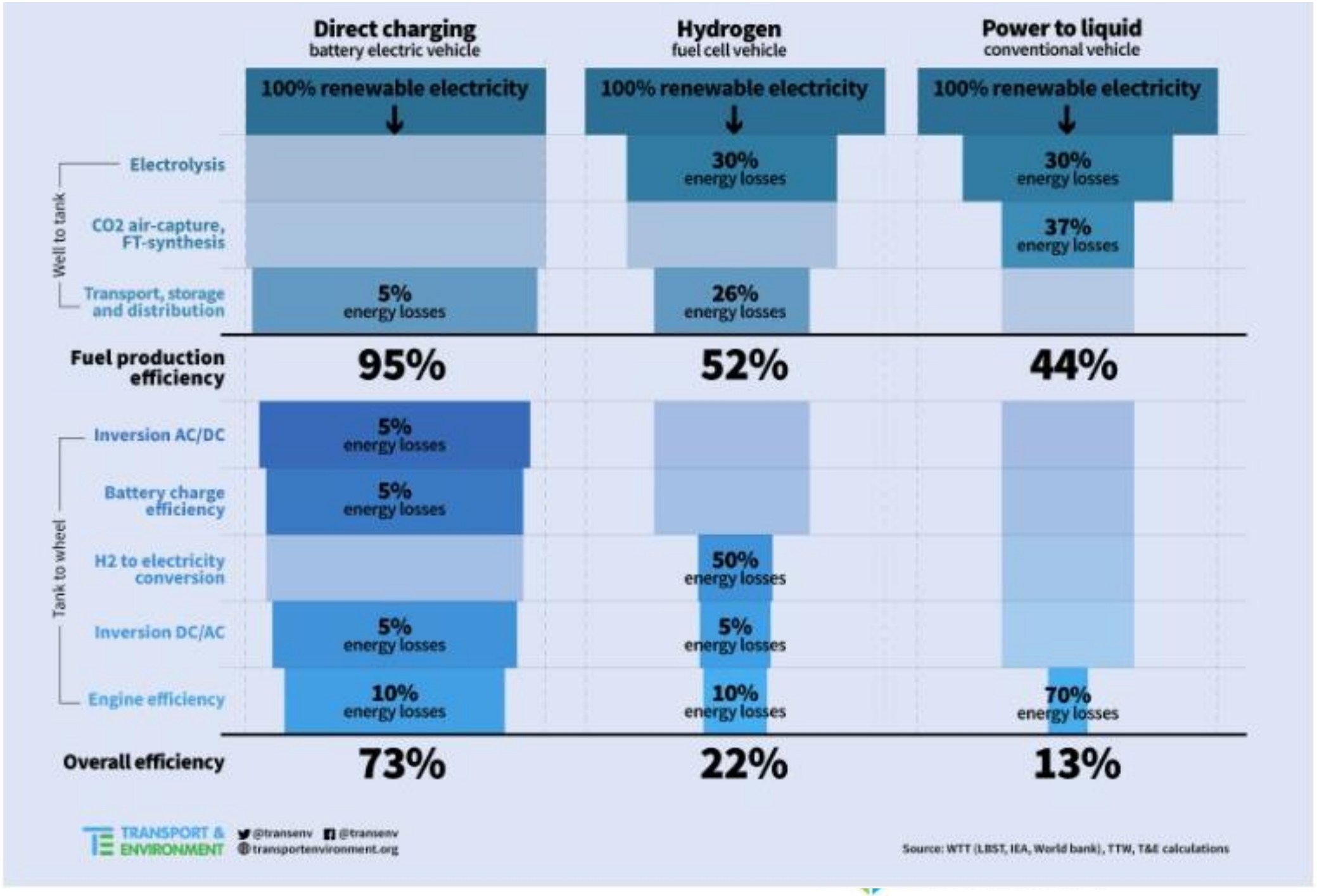

https://www.transportenvironment.org/sites/te/files/publications/2017_11_Briefing_electrofuels_final.pdf

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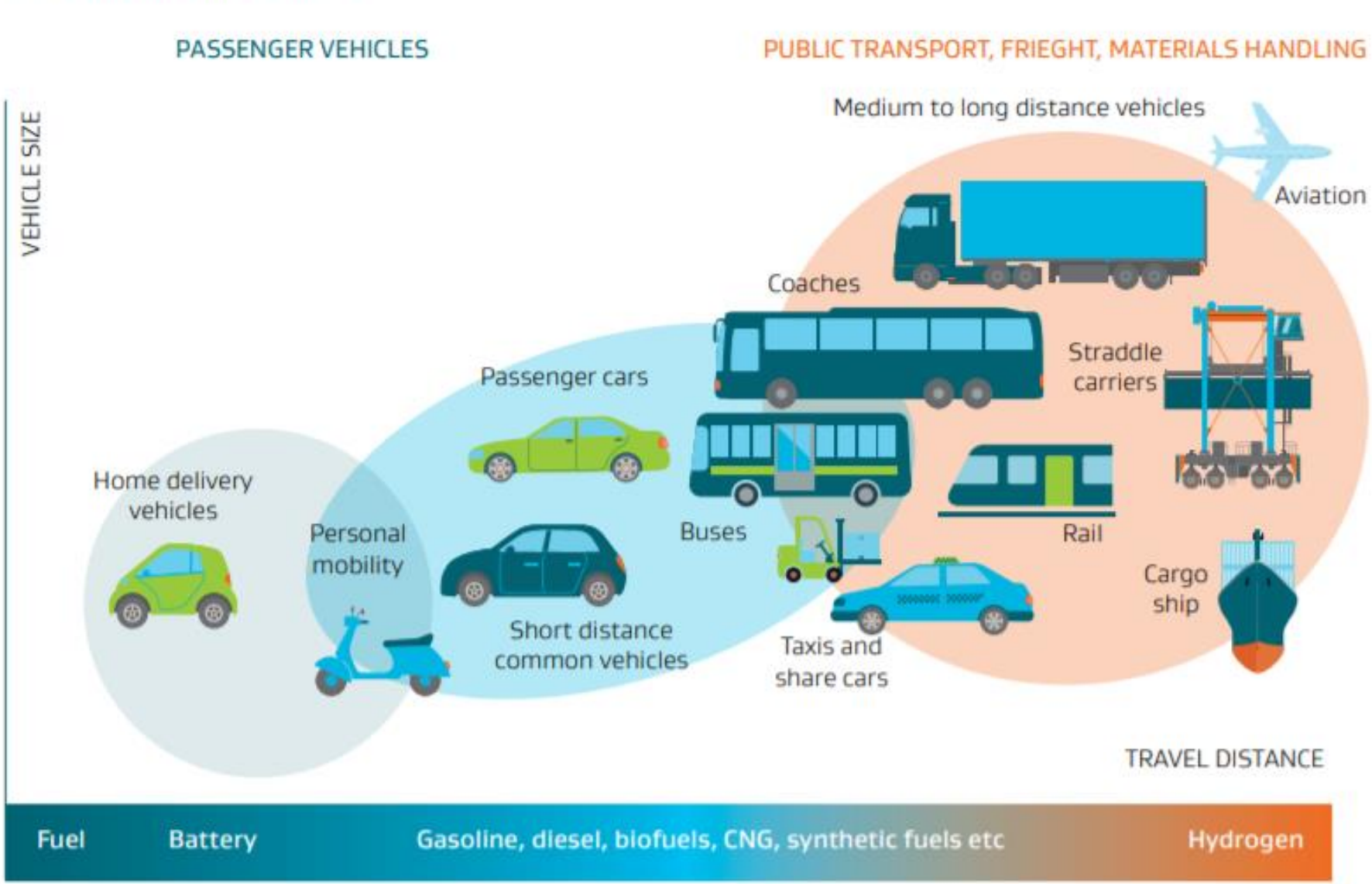
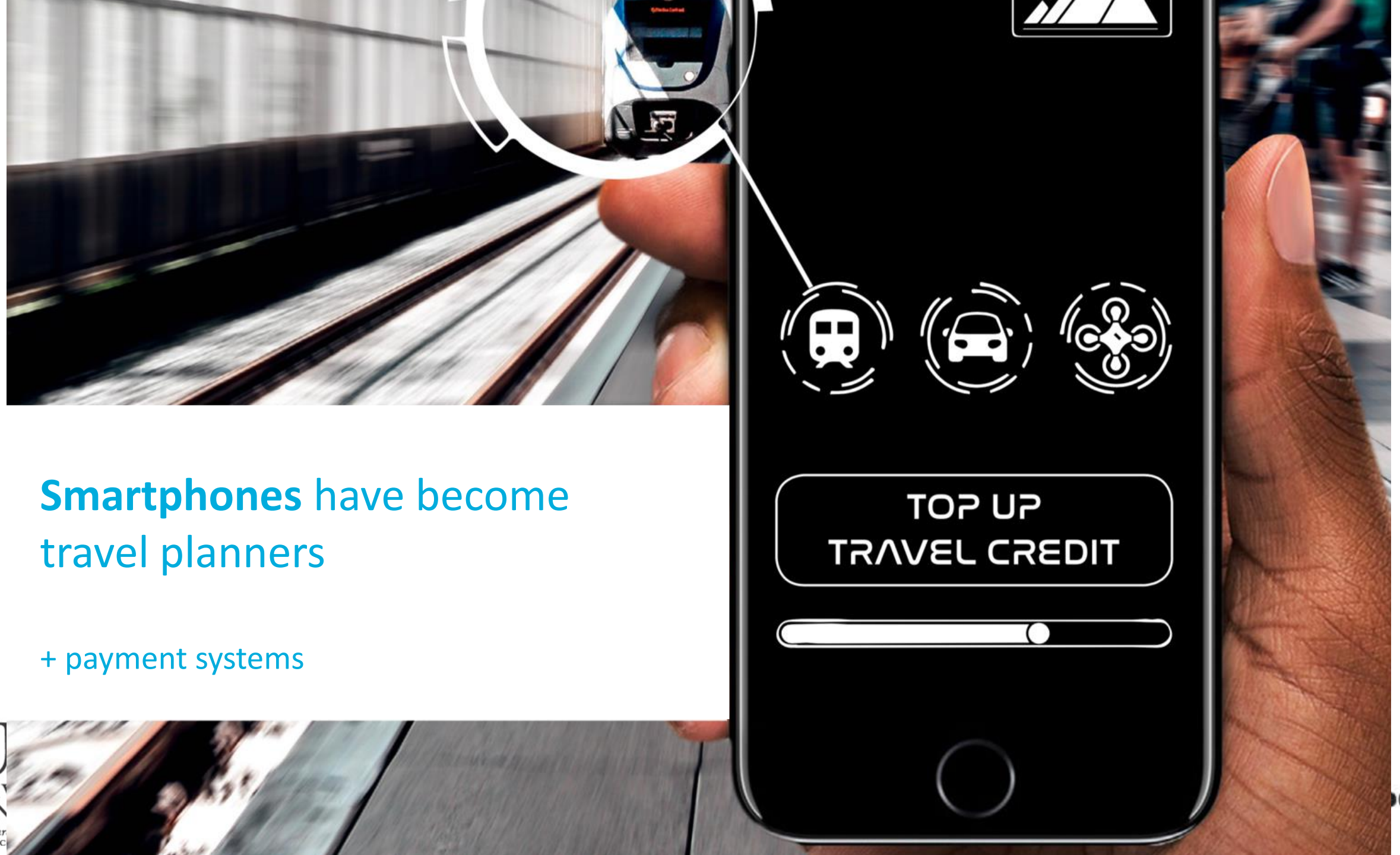


https://www.mbie.govt.nz/have-your-say/a-vision-for-hydrogen-in-new-zealand-public-consultation/

Figure 16: Vehicles that can be powered by hydrogen or electricity (17)



Smartphones have become travel planners

+ payment systems

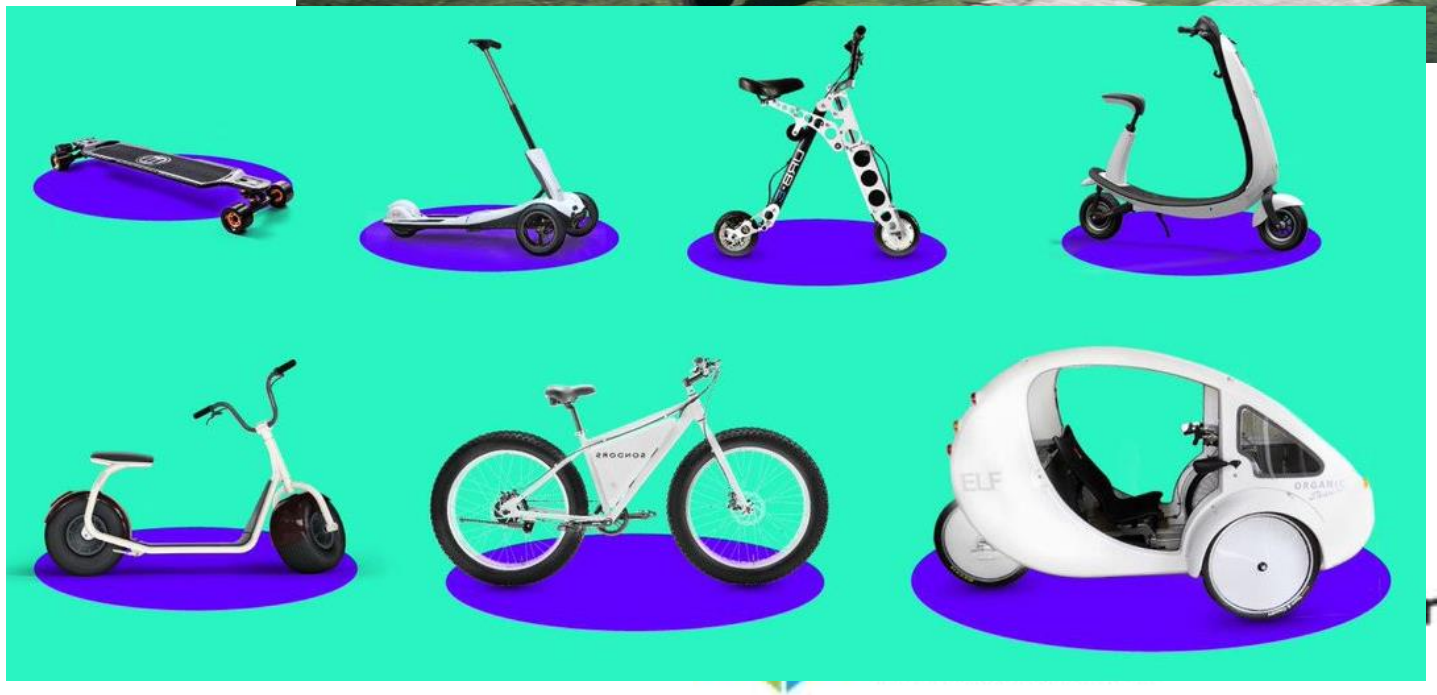
Ride hailing and sharing services have become common

Smartphones

But

- Does everyone have access to them?
- Socio-economic issues?

Micromobility



Advantages of micromobility

- Reducing GHG Emissions and Improve air pollution
- Enhancing efficiency
  - 22 kgs vs 1300 kgs
- Save money
  - 1 % cost of fueling a car
- Open up public transport
  - First- and last-mile transport
- Fun!

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Concerns of micromobility

NEW ZEALAND

Plans to allow bikes, e-bikes and e-scooters on footpaths opposed

17 Apr, 2020 1:51pm

4 mi

https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12325605

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Shared mobility

Shared mobility

Electric vehicles on-demand

Join the sharing revolution for a better tomorrow

ZERO EMISSIONS

Zilch cars are all 100% battery electric. There's no petrol or diesel used in Zilch cars

REDUCED CONGESTION

One shared car can replace 10 privately used vehicles, freeing our city streets

SAFER ROADS

All our cars are ANCAP 5-star rated, full of the latest safety technology

SHARE THE LOVE

Shared private & public use means anyone over 21yrs can drive Zilch cars

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Shared mobility

- Vauban, Freiburg

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Mobility as a service (Maas)

whim

Helsinki English

Plans Help News **Download**

	Whim Urban 30 €59,7 / 30 days	Whim Weekend €249 / 30 days	Whim Unlimited €499 / month	Whim to Go Pay as you go
Public transport	HSL 30-day ticket	HSL 30-day ticket	Unlimited HSL single tickets	Pay as you go
City bikes	Included (max. 30 min per ride)	Included (max. 30 min per ride)	Included (max. 30 min per ride)	Whole season 24,90€
Taxis	4 x €10 (max. 5km rides), others normal price	-15%	80 rides (max 5 km), other rides normal price	Pay as you go
Rental car	€49/day	Weekends	Unlimited	Pay as you go
E-scooter	TIER Standard pricing	TIER Standard pricing	TIER Standard pricing	TIER Standard pricing
	Read more	Read more	Read more	Read more

1€ = NZ$1.80

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Potential Impacts of Shared Mobility

- Newer vehicles
  - Less pollution (inc EVs)
  - Safer
- Decision for ‘every’ trip
  - More ‘cheaper’ greener trips
- But “*it may happen that MaaS increases inequality where premium levels of service are on offer to those who pay more*”
  - https://www.polisnetwork.eu/uploads/Modules/PublicDocuments/polis-maas-discussion-paper-2017---final_.pdf

Autonomous vehicles

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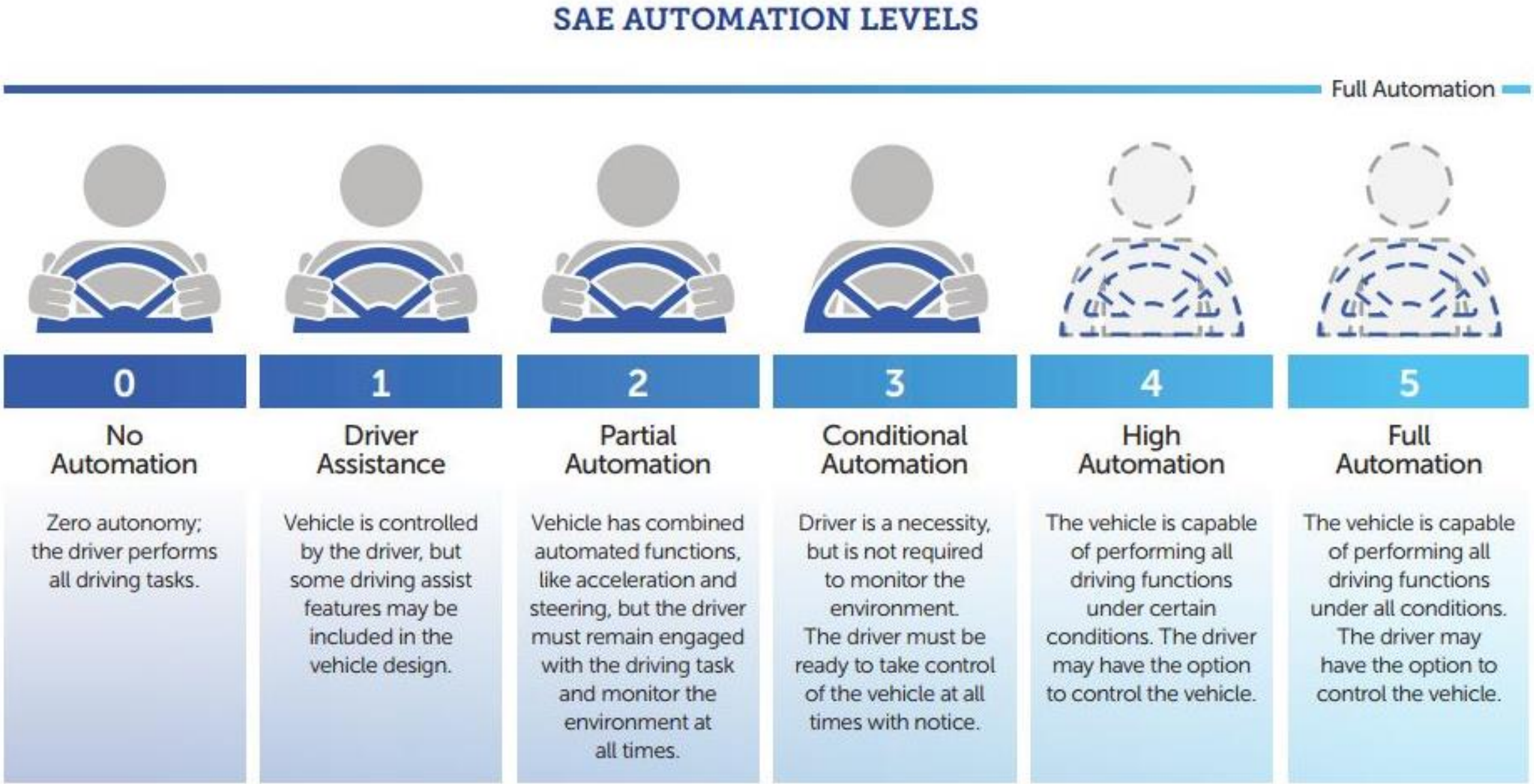
Autonomous vehicles




CITY TOUR
ROLLICKIN dessert cafe
open 7 days
11AM to 10PM
152
TRAMWAYS.
ohmio
HOP
PROUDLY DESIGNED IN AOTEAROA

CORA

Fully autonomous vehicles

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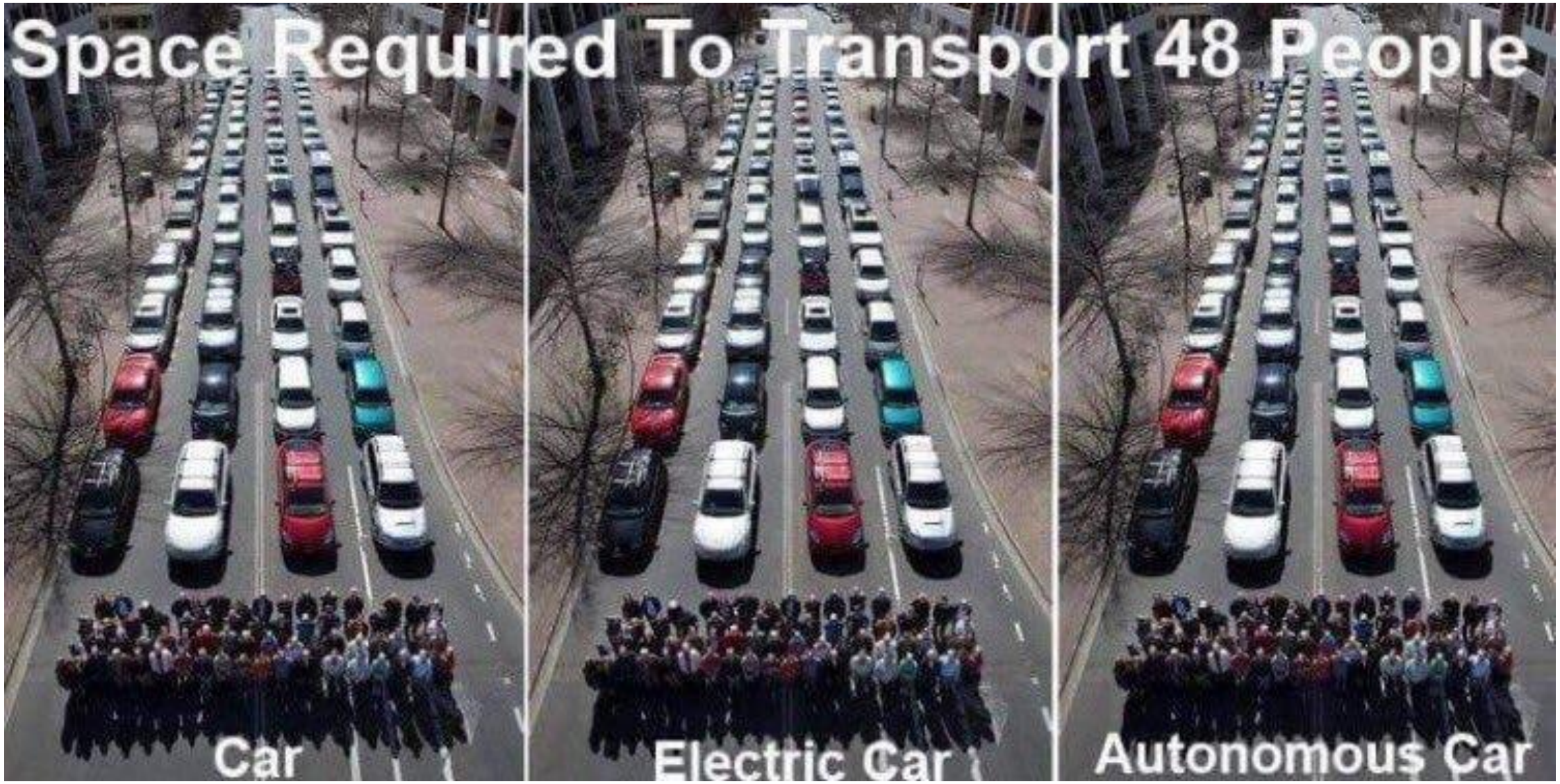

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Mass Passenger Transport

Rapid

- High speed rail
  - Conventional
  - 200-300 km/h
- Maglev
  - Magnet levitation
  - 450km/h (600km/h)
- Hyperloop
  - Vacuum
  - 1200 km/h

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Slower

Speed and capacity

Flexibility

- Bus

- Trolley bus (bus on overhead wire)

- Streetcar (single unit?)

- Tram (multiple units?)
- Light rail (modern tram without a step)

- Metro rail

Tracks

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Slower

Trackless tram

- Flexibility and capacity?

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Flexible

On-demand – e.g. Timaru

- http://www.mywaybymetro.co.nz/

electronic Road User Charges (eRUC)

electronic Road User Charges (eRUC)

Currently 50% fuel excise/ 50% RUC

Distance

Road Space?

- Network efficiency/manage congestion
  - Potential for variable trip cost by time and space
  - Could encourage PT

A future vision for Christchurch?

… and the role of transport

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Freiburg, Germany

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sport


Freiburg, Germany

Freiburg, Germany

Vathorst, Netherlands


fietsstraat
auto te gast
Groot Wezenland

If you plan cities for cars & traffic, you get cars & traffic. If you plan for people & places, you get people & places - Fred Kent

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Thanks

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